


REPORT TO THE MONTANA LEGISLATURE

2011-2012

Montana Forest and Conservation Experiment Station



**WORKING WITH MONTANANS
TO USE, RESTORE, AND SUSTAIN
VALUED NATURAL RESOURCES AND
PROMOTE OUR QUALITY OF LIFE**



The Montana Forest and Conservation Experiment Station (MFCES) is the statewide agency research unit of the College of Forestry and Conservation. The MFCES was founded in 1937 and provides base funding for an active research program at the College. That research addresses issues Montanans care about, from water availability to forest management.

The MFCES owns and manages two properties, Lubrecht Experimental Forest and Bandy Experimental Ranch. Both are actively managed for timber and grazing and serve as outdoor laboratories for the college's students and faculty. The public can enjoy Lubrecht's miles of ski trails and lodging/event facilities.



COLLEGE OF FORESTRY & CONSERVATION



The University of
Montana

HIGHLIGHTS FROM 2011-12

Educating the next generation of natural resource professionals

The MFCES, part of the College of Forestry and Conservation, helps students achieve their goals to become natural resource management leaders. The college offers five undergraduate degrees and three minors, including a new minor in Wildland Fire Sciences & Management. Students in that program gain hands-on experience running prescribed fires as they earn both firefighting qualifications and academic degrees.

The College also offers five master's degrees and three PhD options. Each year nearly 1,000 students come here from 47 states and 12 countries to learn about sound management of our nation's forests, grasslands, wildlife, and waters.

Research Initiatives

Using the state base funds, the MFCES pursues additional funding to conduct research and outreach that enhances the understanding, stewardship, and use of Montana's water, timber, wildlife, land, and other natural resources in ways that enhance quality of life.

In 2011-12, MFCES researchers are working on more than 200 funded research projects and published more than 175 articles in scientific and professional journals about that work. Their research directly supports management of Montana's natural resources and is featured in local and state news and in other outreach to land managers. For example, the *Ravalli Republic* recently reported on MFCES research examining predation as a factor in elk calf survival in the Bitterroots.

MFCES researchers work collaboratively with local land managers and businesses ranging from Montana landowners, to log home companies, to Trout Unlimited. Other examples of the research and outreach of the MFCES include:

- MFCES researchers are studying the effects of pre-commercial thinning on tree and stand growth rates in lodgepole and Ponderosa pine forests.
- Professor Dave Naugle is helping landowners take action to recover sage grouse while at the same time improving grazing and keeping their land open for ranching.
- Professor Kelsey Jencso is producing data about drought, degree growing days, ground cover stress, and other factors important to the industries and public who rely on Montana's clean, available water.
- MFCES researchers and students use the Mann Gulch Memorial Greenhouse to cultivate more than 10,000 native plant and tree seedlings used by Montanans for reforestation projects.
- MFCES fire researchers are using advanced laser technology to collect fuels data that will help generate precise, accurate fire models. Landowners will be able to use these models to make decisions about how to protect their resources from fire.
- Professor Elizabeth Metcalf is studying recruitment of new hunters, especially women and underrepresented groups.
- Professor Woodam Chung has developed software tools to help forest planners make tactical and operational decisions about where and when to apply forest treatments and what equipment to use to maximize revenue.

The following MFCES-funded researchers employ an additional 120 people each year to work on research projects

David Affleck - Assoc. Professor of Forest Biometrics *and* Dir. of the Inland Northwest Growth & Yield Cooperative

Ashley Ballantyne - Asst. Professor of Bioclimatology

Jill Belsky - Professor of Rural and Environmental Sociology *and* Dir. of Bolle Center for People and Forests

Bill Borrie - Professor of Park & Recreation Management

Keith Bosak - Asst. Professor of Nature-Based Tourism & Recreation

Jim Burchfield - Dean *and* Professor of Forest Social Sciences

Edwin Burke - Professor of Wood Science & Technology

Woodam Chung - Assoc. Professor of Forest Operations

Cory Cleveland - Assoc. Professor of Terrestrial Biogeochemistry

Solomon Dobrowski - Asst. Professor of Forest Landscape Ecology

Beth Dodson - Assoc. Professor of Integrated Natural Resource Planning

Lisa Eby - Assoc. Professor of Aquatic Vertebrate Ecology

Wayne Freimund - Professor of Protected Area Management

John Goodburn - Assoc. Professor of Silviculture

Mark Hebblewhite - Assoc. Professor of Ungulate Habitat Ecology

Kelsey Jencso - Asst. Professor of Watershed Hydrology

Chris Keyes - Assoc. Research Professor of Silviculture

Andrew Larson - Asst. Professor of Forest Ecology

Paul Lukacs - Asst. Professor of Quantitative Wildlife Ecology

Laurie Marczak - Asst. Professor of Aquatic Invertebrate Ecology

Elizabeth Covelli Metcalf - Asst. Professor of Parks Tourism & Recreation Mgmt.

Alexander Metcalf - Asst. Research Professor and Asst. Dir. of Bolle Center for People and Forests

L. Scott Mills - Professor of Wildlife Population Ecology

Neil Moisey - Interim Deputy Commissioner of Academic, Research, & Student Affairs

Dave Naugle - Professor of Large Scale Wildlife Ecology

Cara Nelson - Assoc. Professor of Restoration Ecology

Norma Nickerson - Research Professor and Dir. of Institute for Tourism and Recreation Research

Martin Nie - Professor, Natural Resource Policy

Michael Patterson - Assoc. Dean and Professor of Human Dimensions of Wildlife and Natural Resource Mgmt.

Dan Pletscher - Professor of Wildlife Biology and Dir. of the Wildlife Biology Program

Lloyd Queen - Professor of Remote Sensing and Dir. of National Center for Landscape Fire Analysis

Steve Running - Regents Professor of Ecology and Dir. of Numerical Terradynamics Simulation Group

Steve Siebert - Professor of Tropical Forest Conservation and Management

Diana Six - Professor of Forest Entomology/Pathology

Tyron Venn - Assoc. Professor of Natural Resource Economics

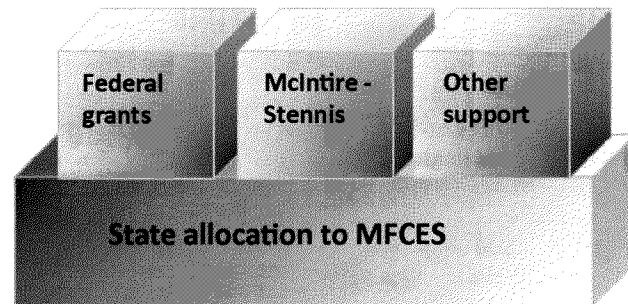
Ron Wakimoto - Professor of Forest Fire Science

Laurie Yung - Assoc. Professor of Natural Resource Social Science

VISIT OUR WEB SITE FOR MORE
INFORMATION
www.cfc.umt.edu

During this biennium, the Montana Forest and Conservation Experiment Station managed nearly \$35,000,000 in additional external grants and contracts. The state's investment in the MFCES provides the matching funds needed to obtain much of this additional funding.

- Federal agencies such as the US Dept. of Agriculture's Forest Service, the National Science Foundation, and the National Park Service, as well as state agencies, non-profit organizations, and private foundations, all support MFCES research.
- The USDA's McIntire-Stennis Program provided more than \$660,000 to the MFCES in 2011-12.



The state's investment in research at the Montana Forest and Conservation Experiment Station leads to additional funding from federal and state agencies, private foundations, and other sources.

Private donors also support the CFC through scholarships and general funds. In 2011-12, the CFC:

- Raised nearly \$984,000 from private donors to support our work, including \$80,000 used for facility upgrades at Lubrecht Experimental Forest and the Memorial Greenhouse
- Gave scholarships to nearly 1/4 of our students, from an endowed forestry scholarship fund of more than \$2,000,000

THE MONTANA FOREST AND CONSERVATION EXPERIMENT STATION CONTINUES TO LEVERAGE ITS STATE ALLOCATION TO GENERATE ADDITIONAL EXTERNAL SUPPORT.

This investment generates immediate and long-term benefits both to Montana's forests and to the state's economy. The scientists trained here become Montana's next generation of entrepreneurs, innovators, and land managers.



MONTANA FOREST AND CONSERVATION EXPERIMENT STATION



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Photos

Front page: *Main photo* - beetle-damaged trees at Lubrecht Experimental Forest; *Inset photos, left to right* - student propagating seedlings in Memorial Greenhouse, faculty and research assistants conducting a prescribed burn for a reforestation study at Lubrecht

This page: *Main photo* - Lubrecht Manager Frank Maus and a student replanting a section of the MFCES experimental forest; *Inset photos, left to right* - MFCES faculty teaching students about hydrology on Lubrecht's Elk Creek, PhD student Ryan Bracewell studies the symbiotic relationship of fungi and pine beetles